UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IX

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| IN THE MATTER OF: | ) | SETTLEMENT AGREEMENT FOR RECOVERY OF RESPONSE COSTS |
| BROWN & BRYANT SUPERFUND SITE<br>600 South Derby Road<br>Arvin, California | ) | U.S. EPA Region IX<br>CERCLA Docket No. 2008-28 |
| UNION PACIFIC RAILROAD COMPANY AND BNSF RAILWAY COMPANY, | ) | PROCEEDING UNDER SECTION 122(h)(1) OF CERCLA<br>42 U.S.C. § 9622(h)(1) |
| SETTLING PARTIES | ) | |

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## I. JURISDICTION

1. This Settlement Agreement is entered into pursuant to the authority vested in the Administrator of the U.S. Environmental Protection Agency ("EPA") by Section 122(h)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. § 9622(h)(1), which authority has been delegated to the Regional Administrators of the EPA by EPA Delegation No. 14-14-D and redelegated to the Chief of Region IX's Superfund Site Cleanup Branch by regional delegation R9 1290.20.

2. This Settlement Agreement is made and entered into by EPA and Union Pacific Railroad Company and BNSF Railway Company ("Settling Parties"). Each Settling Party consents to and will not contest EPA's authority to enter into this Settlement Agreement or to implement or enforce its terms.

## II. BACKGROUND

3. This Settlement Agreement concerns the Brown & Bryant Superfund Site, Arvin Pesticide Reformulation Facility ("Site"), which is located at 600 South Derby Road in Arvin, California. EPA alleges that the Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

4. In response to the release or threatened release of hazardous substances at or from the Site, EPA undertook response actions at the Site pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604.

5. In performing the response action, EPA has incurred and will incur response costs at or in connection with the Site.

6. EPA alleges that Settling Parties are responsible parties pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and further alleges that Settling Parties are jointly and severally liable for response costs incurred or to be incurred at or in connection with the Site.

7. In November 1996, the United States and the California Department of Toxic Substances Control ("DTSC") filed separate actions against the Settling Parties, Shell Oil Company ("Shell"), and Brown & Bryant Inc., pursuant to Section 107(a) of CERCLA, 42 U.S.C. 9607(a), to recover the costs of response incurred and to be incurred by the United States and DTSC at the Site. The cost recovery actions were consolidated for trial. Following trial, on July 15, 2003, the United States District Court for the Eastern District of California issued its Amended Findings of Fact and Conclusions of Law which held, among other matters, that the Settling Parties and Shell are liable under CERCLA; that the

environmental harm at the Site is reasonably capable of apportionment; that the Settling Parties are jointly and severally liable for 9% of all costs of response incurred and to be incurred by the United States and DTSC at the Site; and that Shell is severally liable for an additional 6% of all costs of response incurred and to be incurred by the United States and DTSC at the Site. The United States and DTSC appealed, and on May 25, 2008, the United States Court of Appeals for the Ninth Circuit issued its second amended opinion which reversed the district court's decision with respect to apportionment and held that the Settling Parties and Shell are jointly and severally liable for all costs of response incurred and to be incurred by the United States and DTSC at the Site. On June 23, 2008, the Settling Parties and Shell filed separate petitions for a writ of certiorari with the United States Supreme Court seeking review of the Ninth Circuit's decision. On October 1, 2008, the Supreme Court granted both petitions and consolidated the cases for oral argument.

8. EPA and Settling Parties recognize that this Settlement Agreement has been negotiated in good faith and that this Settlement Agreement is entered into without the admission or adjudication of any issue of fact or law.

## III. PARTIES BOUND

9. This Settlement Agreement shall be binding upon EPA and upon each Settling Party and their successors and assigns. Any change in ownership or corporate or other legal status of a Settling Party, including but not limited to, any transfer of assets or real or personal property, shall in no way alter such Settling Party's responsibilities under this Settlement Agreement. Each signatory to this Settlement Agreement certifies that he or she is authorized to enter into the terms and conditions of this Settlement Agreement and to bind legally the party represented by him or her.

## IV. DEFINITIONS

10. Unless otherwise expressly provided herein, terms used in this Settlement Agreement that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meanings assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Settlement Agreement or in Appendix A attached hereto, the following definitions shall apply:

    a. "Settlement Agreement" shall mean this Settlement Agreement for Recovery of Response Costs, EPA Region IX CERCLA Docket Number 2008-28. In the event of conflict between this Settlement Agreement and Appendix A, the Settlement Agreement shall control.

    b. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601, *et seq.*

c. "Day" shall mean a calendar day. In computing any period of time under this Settlement Agreement, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next working day.

d. "EPA" shall mean the United States Environmental Protection Agency and any successor departments, agencies or instrumentalities of the United States.

e. "Effective Date" shall mean the effective date of this Settlement Agreement as provided by Section XVII.

f. "ROD" shall mean the 2007 Record of Decision ("ROD") for Operable Unit 2 ("OU2"). The remedy selected in the ROD was designed to contain and treat groundwater contaminated with pesticides in the vicinity of the Site and also provides for relocation of Arvin City Well CW-1.

g. "Phase I" shall mean Phase I of the Remedy, as described in the attached Scope of Work, including the work associated with the relocation of Arvin City Well 1. Phase I shall not include land acquisition, water treatment facilities, water storage tanks, or any piping or pumps not located at the new well location.

h. "Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.[1]

i. "Paragraph" shall mean a portion of this Settlement Agreement identified by an Arabic numeral.

j. "Parties" shall mean EPA and Settling Parties.

k. "Settled Response Costs" shall mean the funds totaling $985,000 paid by the Settling Parties pursuant to Paragraph 11, below, which shall be used in accordance with Paragraph 14.

l. "Section" shall mean a portion of this Settlement Agreement identified by a Roman numeral.

[1] The Superfund currently is invested in 52-week MK notes. The interest rate for these MK notes changes on October 1 of each year. Current and historical rates are available online at http://www.epa.gov/cfo/finstatement/superfund/int_rate.htm.

m. "Settling Parties" shall mean Union Pacific Railroad Company and BNSF Railway Company.

n. "Site" shall mean the Brown & Bryant Superfund Site, Arvin Pesticide Reformulation Facility ("Site") located in Arvin, California.

o. "United States" shall mean the United States of America, including its departments, agencies, and instrumentalities.

## V. PAYMENT OF RESPONSE COSTS

11. Subject to Paragraph 15 below, within 30 days of the Effective Date of this Settlement Agreement, each Settling Party shall pay to EPA $492,500, for a total of $985,000, for Settled Response Costs.

12. Each Settling Party shall pay the Settled Response Costs as set forth in Paragraph 11 of this Settlement Agreement by either Electronic Funds Transfer ("EFT") or a certified or cashier's check(s), as described below:

a. Payment by EFT shall be made to EPA by in accordance with current EFT procedures to be provided to Settling Parties by EPA Region IX, and shall be accompanied by a statement identifying the name and address of the party(ies) making payment, the Site name, the EPA Region (IX) and Site/Spill ID Number (09H2), and the EPA docket number for this action.

b. Payment by a certified or cashier's check(s) shall be made payable to "EPA Hazardous Substance Superfund," and each check, or letter accompanying each check, shall identify the name and address of the party(ies) making payment, the Site name, the EPA Region (IX) and the EPA Site/Spill ID Number (09H2), and the EPA docket number for this action. Any payment by check shall be sent to:

U.S. Environmental Protection Agency
Superfund Payments
Cincinnati.Finance Center
PO Box 979076
St. Louis, Missouri 63197-9000

13. At the time of payment, Each Settling Party shall also send notice that payment has been made to EPA in accordance with Section XII (Notices and Submissions). Such notice shall reference the EPA Region and Site/Spill ID Number (09H2), and the EPA Docket Number for this action (2008-28).

14. The Settled Response Costs to be paid pursuant to Paragraph 11 shall be deposited in the Brown & Bryant Superfund Site Special Account within the EPA Hazardous Substance Superfund to be retained and used as described in this Paragraph. EPA will use all Settled Response Costs in the Brown & Bryant Superfund Site Special Account to implement Phase I of the ROD before using any other funds for such purposes. If any portion of the Settled Response Costs remains in the Brown & Bryant Superfund Site Special Account after full implementation of Phase I of the ROD, EPA will, after consultation with the Settling Parties, apply such funds for other response costs at or in connection with the Site. In the event that there are no additional costs at the Site to which the funds can be applied, EPA may transfer the funds to the EPA Hazardous Substance Superfund.

15. EPA shall provide the Settling Parties with a credit, in the amount of Settled Response Costs paid by the Settling Parties, against the Settling Parties' liability for response costs at the Site.

## VI. FAILURE TO COMPLY WITH SETTLEMENT AGREEMENT

16. Interest on Late Payments. If Settling Parties fail to make any payment required by Paragraph 11 by the required due date, Interest shall begin to accrue on the unpaid balance on the due date and shall continue to accrue through the date of payment.

17. Stipulated Penalty.

a. If the amount due to EPA under Paragraph 11 is not paid by the required date, Settling Parties shall be in violation of this Settlement Agreement and shall pay to EPA, as a stipulated penalty, in addition to the Interest required by Paragraph 16, $2,000 per violation per day that such payment is late.

b. Stipulated penalties are due and payable within 30 days of the date of demand for payment of the penalties by EPA. All payments to EPA under this Paragraph shall be identified as "stipulated penalties" and shall be made payable to "EPA Hazardous Substance Superfund." The check, or a letter accompanying the check, shall reference the name and address of the party(ies) making payment, the Site name, the EPA Region and Site Spill ID Number (09H2), and the EPA Docket Number for this action. Any Settling Party required to pay stipulated penalties shall send its check (and any accompanying letter) to:

U.S. Environmental Protection Agency
Superfund Payments
Cincinnati Finance Center
PO Box 979076
St. Louis, Missouri 63197-9000

c. At the time of each payment, each Settling Party shall also send notice that payment has been made to EPA in accordance with Section XII (Notices and Submissions). Such notice shall identify the EPA Region and Site Spill ID Number (09H2), and the EPA Docket Number for this action (2008-28).

d. Penalties shall accrue as provided in this Paragraph regardless of whether EPA has notified Settling Parties of the violation or made a demand for payment, but need only be paid upon demand. All penalties shall begin to accrue on the day after payment is due and shall continue to accrue through the date of payment. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

18. In addition to the Interest and Stipulated Penalty payments required by this Section and any other remedies or sanctions available to EPA by virtue of Settling Parties' failure to comply with the requirements of this Settlement Agreement, any Settling Party who fails or refuses to comply with the requirements of this Settlement Agreement shall be subject to enforcement action pursuant to Section 122(h)(3) of CERCLA, 42 U.S.C. § 9622(h)(3). If the United States, on behalf of EPA, brings an action to enforce this Settlement Agreement, the Settling Party or Parties against whom enforcement is sought shall reimburse the United States for all costs of such action, including but not limited to costs of attorney time.

19. The obligations of Settling Parties to pay the total amount owed to EPA under this Settlement Agreement are joint and several. In the event of the failure of any one or more Settling Parties to make or contribute to the payments required under this Settlement Agreement, the remaining Settling Parties shall be responsible for such payments. The joint and several obligations of the Settling Parties under this Settlement Agreement relate only to monies owed under Paragraph 11 of this Settlement Agreement and have no other force or effect on any alleged liability of any Settling Party.

20. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive payment of any portion of the stipulated penalties that have accrued pursuant to this Settlement Agreement. Payment of stipulated penalties shall not excuse Settling Parties from payment as required by Section V or from performance of any other requirements of this Settlement Agreement.

## VII. COVENANT NOT TO SUE BY EPA

21. Covenant Not to Sue by EPA. Except as specifically provided in Section VIII (Reservations of Rights by EPA), EPA covenants not to sue or take administrative action against Settling Parties pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), to recover Settled Response Costs. This covenant shall take effect upon receipt by EPA of all amounts required by Section V (Payment of Response Costs) and any amounts due under Section VI (Failure to Comply with Settlement Agreement). This covenant not to sue is

conditioned upon the satisfactory performance by Settling Parties of their obligations under this Settlement Agreement. This covenant not to sue extends only to Settling Parties and does not extend to any other person.

## VIII. RESERVATIONS OF RIGHTS BY EPA

22. EPA reserves, and this Settlement Agreement is without prejudice to, all rights against Settling Parties with respect to all matters not expressly included within the Covenant Not to Sue by EPA in Paragraph 21. Notwithstanding any other provision of this Settlement Agreement, EPA reserves all rights against Setting Parties with respect to:

    a. liability for failure of Settling Parties to meet a requirement of this Settlement Agreement;

    b. liability for any costs incurred or to be incurred by the United States that are not Settled Response Costs;

    c. liability for injunctive relief or administrative order enforcement under Section 106 of CERCLA, 42 U.S.C. § 9606;

    d. criminal liability; and

    e. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments.

23. The Settling Parties recognize and acknowledge that the settlement embodied in this Settlement Agreement relates only to Settled Response Costs, and that in order to complete Phase I, and in order to oversee Phase 1 and to commence work associated with other portions of the ROD and SOW, EPA may incur response costs in addition to Settled Response Costs.

24. Nothing in this Settlement Agreement is intended to be nor shall it be construed as a release, covenant not to sue, or compromise of any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the United States may have against any person, firm, corporation or other entity not a signatory to this Settlement Agreement.

## IX. COVENANT NOT TO SUE BY SETTLING PARTIES

25. Settling Parties covenant not to sue and agree not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to Settled Response Costs or this Settlement Agreement, including but not limited to:

a. any direct or indirect claim for reimbursement from the EPA Hazardous Substance Superfund based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

b. any claims arising out of the response actions at the Site for which the Settled Response Costs are incurred, including any claim under the United States Constitution, the Constitution of the State of California, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law; and

c. any claim against the United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to Settled Response Costs.

26. Nothing in this Settlement Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

## X. EFFECT OF SETTLEMENT/CONTRIBUTION PROTECTION

27. Nothing in this Settlement Agreement shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Settlement Agreement. The Parties expressly reserve any and all rights (including, but not limited to, any right to contribution), defenses, claims, demands, and causes of action that they may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto. Nothing in this Settlement Agreement diminishes the right of the United States, pursuant to Section 113(f)(2) and (3) of CERCLA § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

28. EPA and Settling Parties agree that the actions undertaken by Settling Parties in accordance with this Settlement Agreement do not constitute an admission of any liability by any Settling Party. Settling Parties do not admit, and retain the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the facts or allegations contained in Section II of this Settlement Agreement.

29. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposed of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and that Settling Parties are entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), for "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are Settled Response Costs. The Parties further agree that this Settlement Agreement constitutes an administrative settlement for

purposes of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B), pursuant to which Settling Parties have, as of the Effective Date, resolved their liability to the United States for Settled Response Costs .

30. Each Settling Party agrees that with respect to any suit or claim for contribution brought by it after the Effective Date for matters related to this Settlement Agreement, it will notify EPA in writing no later than 60 days prior to the initiation of such suit or claim. Each Settling Party also agrees that, with respect to any suit or claim for contribution brought against it after the Effective Date for matters related to this Settlement Agreement, it will notify EPA in writing within 10 days of service of the complaint or claim upon it. In addition, each Settling Party shall notify EPA within 10 days of service or receipt of any Motion for Summary Judgment and within 10 days of receipt of any order from a court setting a case for trial, for matters related to this Settlement Agreement.

31. In any subsequent administrative or judicial proceeding initiated by EPA, or by the United States on behalf of EPA, for injunctive relief, recovery of response costs, or other relief relating to the Site, Settling Parties shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, *res judicata*, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenant not to sue by EPA set forth in Section VII.

## XI. RETENTION OF RECORDS

32. Until 5 years after the effective date of this Settlement Agreement, each Settling Party shall preserve and retain all records now in its possession or control, or which come into its possession or control, that relate in any manner to response actions taken at the Site or to the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary.

33. After the conclusion of the 5-year document retention period in the preceding Paragraph, Settling Parties shall notify EPA at least 90 days prior to the destruction of any such records and, upon request by EPA, Settling Parties shall deliver any such records to EPA. Settling Parties may assert that certain records are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Settling Parties assert such a privilege, they shall provide EPA with the following: 1) the title of the record; 2) the date of the record; 3) the name, title, affiliation (*e.g.*, company or firm), and address of the author of the record; 4) the name and title of each addressee and recipient; 5) a description of the subject of the record; and 6) the privilege asserted. If a claim of privilege applies only to a portion of a record, the record shall be provided to EPA in redacted form to mask the privileged information only. Settling Parties shall retain all records that they claim to be privileged until EPA has had a reasonable opportunity to dispute the privilege claim and

any such dispute has been resolved in Settling Parties' favor. However, no records created or generated pursuant to the requirements of this or any other settlement with the EPA pertaining to the Site shall be withheld on the grounds that they are privileged.

34. Each Settling Party hereby certifies individually that, to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, reports, or information relating to its potential liability regarding the Site since notification of potential liability by the United States or the State or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

## XII. NOTICES AND SUBMISSIONS

35. Whenever, under the terms of this Settlement Agreement, notice is required to be given or a document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of this Settlement Agreement with respect to EPA and Settling Parties.

As to EPA:

Joshua Wirtschafter
U.S. EPA
Office of Regional Counsel, ORC-3
75 Hawthorne Street
San Francisco, California 94105

And

Travis Cain
U.S. EPA
Superfund Division, SFD-7-2
75 Hawthorne Street
San Francisco, California 94105

As to Settling Parties:

Vice President and General Counsel -- Law
BNSF Railway Company
Post Office Box 961039
Fort Worth, TX 76161-0039

Robert Bylsma, Esq.
Law Department
Union Pacific Railroad Company
10031 Foothills Boulevard, Suite 200
Roseville, CA 95747-7101

And

Marc Zeppetello
Barg Coffin Lewis & Trapp, LLP
350 California Street, 22nd Floor
San Francisco, CA 94104

## XIII. INTEGRATION/APPENDICES

36. This Settlement Agreement and its appendix constitute the final, complete and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement Agreement. The Parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Settlement Agreement. The following appendix is attached to and incorporated into this Settlement Agreement: "Appendix A" is the Scope of Work, dated October 2, 2008.

## XIV. ACCOUNTING FOR EXPENDITURES

37. By the first and second anniversaries of the Effective Date, EPA will provide the Settling Parties with an itemized cost summary document, which provides an accounting of how EPA spent the Settled Response Costs paid pursuant to Paragraph 11 of this Settlement Agreement.

## XV. PUBLIC COMMENT

38. Final acceptance and signature by EPA of this Settlement Agreement shall be subject to and shall not occur before the close of a public comment period of not less than 30 days pursuant to Section 122(i) of CERCLA, 42 U.S.C. § 9622(i). In accordance with Section 122(i)(3) of CERCLA, EPA may modify or withdraw its consent to this Settlement Agreement if comments received disclose facts or considerations which indicate that this Settlement Agreement is inappropriate, improper or inadequate.

## XVI. EFFECTIVE DATE/AMENDMENTS

39. The effective date of this Settlement Agreement shall be the date upon which it is signed by EPA. EPA will provide the representatives of each Settling Party identified in Section XII (Notices and Submissions) with a copy of the notice that the public comment period has closed.

40. This Settlement Agreement may be amended by mutual agreement of EPA and Settling Parties. Amendments shall be in writing and shall be effective when signed by the Assistant Director, Superfund Division, Site Cleanup Branch.

IT IS SO AGREED:

U.S. Environmental Protection Agency

BY: Kathleen Salyer DATE: 2/3/09

Kathleen Salyer, Assistant Director
Superfund Division
California Site Cleanup Branch
U.S. EPA, Region IX

THE UNDERSIGNED SETTLING PARTIES enter into this Settlement Agreement in the matter of U.S. EPA Docket Number 2008-0028, relating to the Brown & Bryant Superfund Site, located in Arvin, California.

FOR BNSF RAILWAY COMPANY:

BY: _____ DATE: Nov 8, 2008

NAME: Mark Stelly

ITS: _____

FOR UNION PACIFIC RAILROAD COMPANY:

BY: _____ DATE: _____

NAME: _____

ITS: _____

APPROVED AS TO FORM

BNSF Railway Law Department

THE UNDERSIGNED SETTLING PARTIES enter into this Settlement Agreement in the matter of U.S. EPA Docket Number 2008-0028, relating to the Brown & Bryant Superfund Site, located in Arvin, California.

FOR BNSF RAILWAY COMPANY:

BY: _____ DATE: _____

NAME: _____

ITS: _____

FOR UNION PACIFIC RAILROAD COMPANY:

BY: RMGrimaldi DATE: 10/30/2008

NAME: Robert Grimaldi

ITS: _____

# Appendix A

# SCOPE OF WORK FOR
# BROWN AND BRYANT SUPERFUND SITE
# REMEDIAL ACTION
# SECOND OPERABLE UNIT
# ARVIN, CALIFORNIA
# 2 October 2008

## Introduction

This Scope of Work (SOW) is attached to the Settlement Agreement for Recovery of Response Costs for the Brown and Bryant Superfund site in Arvin, California CERCLA Docket No. 2008-28 ("Settlement Agreement") solely for purposes of outlining the remedial actions and defining Phase 1 of the remedial actions which the United States Environmental Protection Agency (EPA) intends to implement using Settled Response Costs paid under the Settlement Agreement, consistent with the priorities described in Paragraph 14 of the Settlement Agreement. Those portions of the SOW discussing completion of tasks by the responsible parties are not incorporated into or referenced by the Settlement Agreement.

## Purpose of Effort

The purpose of this Scope of Work (SOW) is to outline the remedial actions (RA) to be completed by (the Respondents ) as selected by the United States Environmental Protection Agency's Record of Decision (ROD) signed September 28, 2007 for the Brown and Bryant Superfund site in Arvin, California. The Responsible Parties ((Respondents) shall complete the following tasks under the (agreement/ Order):

1. Project Planning and Support: Attend Meeting in San Francisco, California; Review Existing Information; and Develop Data Quality Objectives (DQOs)

2. Develop and Submit a Work Plan and Site Specific Work Plans

3. Data Review: Site Reconnaissance, Geological Investigations, and Drilling Activities

4. Review Sample Analysis Reports

5. Review Record of Decisions for the Brown and Bryant Site

6. Remedial Action Implementation Management

7. Prepare a Draft and Final Remedial Action Work Plans for Phase I and Phase II of selected remedial actions by the ROD

8. Prepare a Draft and Final Remedial Action Report for work completed under the ROD

9. Continue Operation and Maintenance (O&M) activities for remedies constructed at the Brown and Bryant Superfund Site and develop a new O&M plan for current RA completed including the existing A-zone and B-Zone groundwater well field, the large diameter A-zone dewatering wells, the RCRA cap, the non-RCRA cap and the overall integrity and security of the site

## History and Objective

The Brown and Bryant pesticide facility (B&B Site) is located at 600 South Derby Road in Arvin, California, about 18 miles southeast of Bakersfield. Brown and Bryant operated as a pesticide reformulator and custom applicator facility from 1960 to 1989. The Brown and Bryant site is approximately 4.96 acres. A perched aquifer (A-zone) underlying the Brown and Bryant pesticide Superfund site, has been identified as a contamination threat to a deeper underlying unconfined regional aquifer (B-zone) which serves as a potential municipal regional water supply. Work performed in the First Operable Unit (OU1) for this project included: installation of a RCRA and non-RCRA cap; installation of groundwater monitoring, extraction, and injection wells; and treatment and disposal of the aboveground tank contents. The objectives for the Second Operable Unit (OU2) project include: closure and relocation of the Arvin City well No. 1 (CW-1), installation of several larger diameter wells (8-foot in diameter) for source reduction, and monitored natural attenuation for groundwater in the B-zone. The final objectives will be to maintain integrity and security of the site, conduct periodic A-zone and B-zone groundwater sampling, and continue operation and maintenance of all activities and remedies constructed at the Brown and Bryant Superfund Site, including the RCRA cap, the non-RCRA cap, the large diameter A-zone dewatering wells, and the A-Zone and B-Zone groundwater well field.

## General Requirements

This SOW describes the Work required to complete an RA that meets the objectives and performance criteria specified in the ROD issued on September 28, 2007 and the remedial design (RD). Furnish all necessary and appropriate personnel, including subcontractors, materials, and services needed for, or incidental to, performing and completing the RA. The RA and associated deliverables under this SOW shall be consistent with the ROD, the Remedial Design/Remedial Action (RD/RA) Handbook (U.S. EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-04B, EPA 540/R-95/059, June 1995), and all other guidance used by EPA in conducting an RA (Attachment 3).

The RA implementation shall be specifically based on the selected remedy of the ROD issued on September 28, 2007 and will be performed in two phases. The selected remedy for this site includes monitored natural attenuation and source mobility reduction. The relocation of the Arvin City Well CW-1 to prevent future exposure to contaminated groundwater is also a part of the remedy. The various components of the selected remedy are described as follows:

**Phase I**

**Relocate the Arvin City Well CW-1:** This remedy was chosen to eliminate the risk pathway by properly plugging and abandoning the Arvin City Well CW- 1 and installing a replacement well. The C-zone aquifer is the potable water aquifer used by the City of Arvin. The Arvin City Well CW- 1 is completed with the production screen set below the B-zone and the Corcoran Clay layer, but the well is reported to be gravel packed from 50 below ground surface (bgs) and to a total depth at 730 feet. Since Arvin City Well CW-1 is located downgradient from the site's contamination plume, its construction may provide a conduit for B-zone groundwater contamination to migrate into the C-zone.

Arvin City Well CW- 1 shall be plugged and abandoned in accordance with all State of California requirements. A replacement well shall be installed outside the known extent of the B&B Site contaminant plume and in a location acceptable to the City of Arvin and the Arvin Community Well District. This would eliminate the potential exposure pathway for contaminated groundwater ingestion. Groundwater produced from this well shall meet all State of California and City of Arvin requirements for potable drinking water supply.

**Phase II**

**Monitored Natural Attenuation for groundwater in the B-zone:** Monitored Natural Attenuation (MNA) refers to the reliance on natural attenuation processes to achieve site-specific remediation objectives within a time frame that is reasonable compared to that offered by other more active methods. The natural attenuation processes that are at work in such a remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These in-situ processes include biodegradation, dispersion, dilution, sorption, volatilization and chemical or biological stabilization, transformation, or destruction of contaminants. EPA does not view MNA to be a "no action" or "walk-away" approach, but rather considers it to be an alternative means of achieving remediation objectives that may be appropriate for specific, well-documented site circumstances where its use meets the applicable statutory and regulatory requirements. The fate and transport model for the Site indicates that relatively fast flow and transport in the B-zone aquifer would attenuate more contaminants of concern (COC) concentrations below the drinking water MCL within a reasonable timeframe, if the source, which is COCs present in the A-zone groundwater, is reduced or controlled. Note that attenuation and transport of Trichloropropane (1,2,3-TCP) have not been fully assessed because of changes in the cleanup standard at the time the ROD was signed.

MNA is typically used in conjunction with active remediation measures. For example, active remedial measures could be applied in areas with high concentrations of contaminants while MNA is used for low concentration areas; or MNA could be used as a follow-up to active remedial measures, such as source mobility reduction or source removal.

The use of MNA at a site does not preclude the use of "active" remediation of or the application of enhancers of biological activity *(e.g.,* electron acceptors, nutrients, and electron donors). 1,2,3-TCP may require additional active remediation to reach the MCL requirements.

The groundwater monitoring associated with the MNA will consist of sampling and analysis of key monitoring wells. Analytical results shall be compiled and presented to USEPA, following each sampling event, with interpretation and graphics showing COC concentration contour maps. The remedial action cleanup levels for the B-zone groundwater (drinking water Maximum contaminant level (MCL)) presented in Table 1, will be used as a guide for evaluating the natural attenuation process. The monitoring schedule shall be quarterly and monitoring frequency could be adjusted, depending on the analytical results and trends. Any change in monitoring frequency shall be approved by USEPA.

(Respondents) shall develop an MNA performance plan during implementation of the remedy. The MNA Plan shall include details of the groundwater monitoring and natural attenuation progress evaluation for the B-zone groundwater. Actual performance of the natural attenuation remedy shall be carefully monitored in accordance with the MNA Plan. If monitoring data indicate that the COC levels do not continue to decline, USEPA and DTSC (Department of Toxic Waste Substances Control) will reconsider the remedy decision. If monitoring and evaluations indicate that the B-zone groundwater COC concentrations are not attenuating as expected, after controlling the source of contamination (the COC impacted A-zone groundwater) appropriate measures shall be implemented to address contamination in the B-zone groundwater. The MNA performance plan shall also include necessary monitoring requirements for contaminated groundwater plume containment evaluation. The purpose of the B-zone containment evaluation is to ensure that the groundwater contamination is not migrating and becoming a risk to human health and the environment. Boundaries of the leading edge plume shall be established for appropriate containment evaluation. If the containment evaluation indicates that the B-zone groundwater is migrating such that it creates a risk to human health or the environment, appropriate containment shall be evaluated and contamination migration will be addressed. In addition, the effectiveness of the MNA program shall be evaluated at the end of every five years .

This part of the remedy shall also include additional institutional controls to address potential health risks and maintain effectiveness of remediation. These controls shall include necessary deed and zoning restrictions (short-term or long-term) and/or permit requirements that will restrict access to portions of aquifers impacted by COC to prevent exposure to contaminated water and spread of contamination. The objective of the institutional controls is to:

- Prevent completion of wells in portions of aquifers impacted by COC, and assure appropriate completion of wells in deeper aquifer (C-zone) to seal off impacted groundwater zones and aquifer units to avoid cross contamination,

- Restrict well drilling and groundwater pumping within at least half a mile from the Site to ensure that pumping influences do not spread contamination and reduce the effectiveness of the remedy.

These controls shall remain in effect until the remedy has restored the impacted groundwater to the MCLs established in the ROD, see Table 1. Specifics of the institutional controls to address the potential health risks will be assessed and developed by the USEPA and DTSC during the remedy implementation.

**A-zone Groundwater Source Reduction:** This part of the remedy consists of dewatering in the A-zone and treating the extracted water. The treated groundwater will then be discharged to the Arvin City sewer. The most optimum location for such a dewatering system shall be identified during the design of the system.

In this part of the remedy, several large diameter wells shall be installed off-site in the locations described above. Up to four large-diameter sump wells shall be constructed by drilling 8-foot diameter holes at the select locations to a depth of 75 feet or into the clay layer that separates the A-zone and B-zone. Because this clay layer is relatively thin, field procedures shall be required to ensure that penetration into the clay is minimal to avoid breaching it, but sufficient to allow the well to serve as a sump for A-zone water. The design of this well shall be approved by the USEPA during the Remedial Design (RD) phase of the project.

It is expected that an average of 15 to 150 gallons per day of water may be extracted from the A-zone using this approach. At peak, this may approach or slightly exceed 1,000 gallons per day. A cost-benefit assessment shall be conducted during the design to assess the best option for storing, treating and disposing of the extracted A-zone groundwater.

The design of the A-zone groundwater dewatering system shall allow for periods of time when the wells are dry. After several years of operation, the A-zone groundwater may occur only on a seasonal and periodic basis. Because of the presence of the A-zone RCRA and non-RCRA caps, the replenishment of the A-zone from infiltration from the B&B Site areas will be limited, allowing for little flushing of the soil contamination that remains. As the remediation progresses, site observations will allow better evaluation of the availability of water in the A-zone and the effectiveness of its dewatering. To the extent that methods are available to improve the process by increased "flushing" of the contaminants, these shall be considered as system enhancements at a later stage.

Periodic monitoring of the A-zone and B-zone groundwater shall be conducted to assess the changing site conditions and the impact of the installed remediation system. It is expected that this monitoring will extend until the OU-2 goal of limiting the B-zone groundwater to COC MCL levels is achieved and no further threat to the B-zone groundwater from the A-zone contamination exists. The remedial action cleanup level goals for A-zone groundwater (10 times the contaminant MCL) are presented as Table 12-6 in the OU2 ROD dated September 28, 2007. These goals shall be used as a basis for evaluating the progress of the remedial action.

The RA shall be complete when the following cleanup criteria have been achieved:

**Table 1**
**Cleanup Levels for B-zone Groundwater**

| Contaminant of Concern | Maximum Contaminant Level ($\mu g/L$)[1] | Source |
|---|---|---|
| Chloroform | 80[2] | Federal National Primary Drinking Water Standards *(40 CFR Part 141)* |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.2 | Federal National Primary Drinking Water Standards *(40 CFR Part 141)* |
| 1,2-Dichloropropane (1,2-DCP) | 5 | Federal National Primary Drinking Water Standards *(40 CFR Part 141)* |
| 1,3-Dichloropropane (1,3-DCP) | 0.5 | California Safe Drinking Water Act (*CCR, Title 22, Sec 64444*) |
| Dinoseb | 7 | Federal National Primary Drinking Water Standards *(40 CFR Part 141)* |
| Ethylene Dibromide (EDB) | 0.05 | Federal National Primary Drinking Water Standards *(40 CFR Part 141)* |
| 1,2,3-Trichloropropane (1,2,3-TCP) | 0.5 | Response Level, Drinking Water Program, California Department of Health Services, 1999; and available analytical practical quantification limit for 1,2,3-TCP. |

**Notes:** [1] micrograms per liter or parts per billion
[2]Total Trihalomethanes (sum of bromodichloromethane, dibromochloromethane, bromoform and chloroform), EPA MCL effective 01/01/04.
**Source:** OU2 Record of Decision, September 28, 2007.

This SOW and accompanying work breakdown structure (WBS) is provided as a format for (Respondents) to structure its work plan.

A summary of the major deliverables and schedule for submittals is in Attachment 1. The USEPA Remedial Project Manager will track deliverables submitted by the (Respondents).

USEPA will provide oversight of (Respondents) activities throughout the RA. USEPA review and approval of deliverables is a tool to assist this process and to satisfy, in part, USEPA's responsibility to provide effective protection of public health, welfare, and the environment.

## RECORD KEEPING REQUIREMENTS

(Respondents) shall maintain accurate work files on all work. Documentation may include but not limited to calculations, assumptions, interpretations of regulations, photographs, sources of information and other raw data required to complete the RA. (Respondents) shall submit an official record of the actions completed within that year. The Annual Progress Performance Report shall include, but is not limited to:

- a description of all work conducted on the site or in support of the site-work,
- a listing of all personnel, including subcontractors, who performed work at the site and the dates the work was performed,
- a photo summary with dates, descriptions of work being performed, names of personnel and equipment photographed,

- an evaluation and percentage of the progress made toward the completion of each portion of the remedy: Relocation of CW-1, Monitored Natural Attenuation of the B-Zone groundwater, and Source Reduction of the A-Zone Groundwater.

(Respondents) at the completion of the RA work, shall submit an RA Completion Report encompassing all work performed at the site. Hard-copy and electronic medial requirements are provided in Attachment 2.

## Task 1 Project Planning and Support

The purpose of this task is to set forth the requirements for project planning and project management. The following activities shall be performed as part of the project-planning task:

1.1 **Review Existing Information.** (Respondents) shall review existing data and documents for work performed throughout the history of the site, including, but not limited to: previous site investigations, Preliminary Assessment Reports, Site Inspection Reports, Hazardous Ranking System Scoring Package, the Final Remedial Investigation Report, Feasibility Studies, Baseline Human Health and Ecological Risk Assessment Report, Community Relations Plan, Groundwater Treatment Plant Operation and Maintenance Manual, Volumes I-III, Quarterly Groundwater Monitoring Reports, Record of Decision ,and other data and documents as directed by USEPA.

1.2 **Develop Data Quality Objectives.** (Respondents) shall prepare data needs and data quality objectives (DQOs) for analytical sampling to be performed during the RA. These DQOs shall be developed in accordance with the EPA 7-step method (EPA 540R-93-071) utilized by USEPA and regulators. The submittal shall include, but not be limited to the following:

**a)** An evaluation of all past data.

**b)** A determination of what information is useful for the RA.

**c)** Identification of data gaps and potential data requirements for the RA.

**d)** Identification of past obstacles encountered which may be useful or impact the decisions on this project.

**e)** (Respondents) shall send out the draft Site Summary report twenty-one (21) days in advance of the scheduled review meeting to the distribution agreed upon.

1.3 **Attend Scoping Meeting.** The (Respondents) shall attend a scoping meeting to be held in San Francisco as scheduled by USEPA (September 2008). (Respondents) shall ensure all required key personnel attend the scoping meeting to develop the project.

1.4 **Identification of Key Personnel.** (Respondents) shall identify all key personnel associated with the implementation of the RA. Names, titles, and contract information shall be provided to USEPA.

## Task 2 Develop and Submit Remedial Action and Site-Specific Work Plans

**2.1 Develop Remedial Action Work Plan.** The (Respondents) shall develop and submit a work plan following the SOW for this RA. The document shall be prepared in accordance with all applicable federal, state, and local regulations. All work plans shall be submitted initially as draft. The (Respondents) shall incorporate all comments in the draft document within twenty-one (21) days of receipt of all comments. Upon approval, (Respondents) shall submit final work plan addendum incorporating all accepted review comments. Information shall be presented in a sequence consistent with the Work Breakdown Structure (WBS) format as provided in this SOW. The Work Plan shall present, but not be limited to the following:

1) A background summary setting forth:
   - **a)** a brief description of the site including the geographic location and a description of the physiographic, hydrologic, geologic, demographic, ecological, cultural, and natural resource features of the site;
   - **b)** a brief synopsis of the history of the site including a summary of past disposal practices and a description of previous responses that have been conducted by local, State, Federal, or private parties at the site;
   - **c)** a summary of the existing data including physical and chemical characteristics of the contaminants identified and their distribution among the environmental media at the site.
2) (Respondents's) technical and management approach to each task to be performed, including: a detailed description of each task; the assumptions used; the identification of any technical uncertainties (with a proposal for the resolution of those uncertainties); the information needed for each task; any information to be produced during and at the conclusion of each task; and a description of the work products that will be submitted to USEPA. (Respondents) shall identify any subcontracts it plans to use to accomplish all or part of a task's objectives. Tasks and subtasks shall be presented in the same WBS format as provided in this work assignment.
3) A schedule for specific dates for the start and completion of each required activity and submission of each deliverable required by this scope of work (SOW). This schedule shall also include information about timing, initiation, and completion of all critical path milestones for each activity and deliverable and the expected review time for USEPA.
4) (Respondents) shall perform project management and reporting activities required to effectively manage the RA project. These activities typically include, but are not limited to, the following: monitoring progress, preparing and submitting monthly progress reports that document monthly performance status, and technical progress. (Respondents) shall also prepare or assisted in the community involvement plan. Activities may include but are not limited to: conducting community interviews, provided support for public meetings, publish public notices in local newspapers, prepare presentation materials, provide final approved documents to the Arvin Public Library, and provide reports to community involvement groups.

**2.2 Site Specific Work Plans.** The (Respondents) shall provide the following:

**2.2.1 Develop Site Management Plan.** The (Respondents) shall submit a site-specific Site Management Plan (SMP) that provides the USEPA with a written

understanding of how mobilization, access, security, contingency procedures, demobilization, and management responsibilities are to be handled. This plan shall address the RCRA and non-RCRA cap portions of the site and provide an on-site mobile office. (Respondents) shall be responsible for the payment of all utility costs including but not limited to: sewer, water, electricity, phones, and natural gas.

2.2.2 **Develop Health and Safety Plan.** (Respondents) shall submit a site-specific Health and Safety Plan (HASP) that specifies employee training, protective equipment, medical surveillance requirements, standard operating procedures, and a contingency plan in accordance with 40 CFR 300.150 of the NCP and 29 CFR 1910.120 1(1) and (1)(2). A task-specific HASP must also be prepared to address health and safety requirements for site visits.

2.2.3 **Develop Sampling and Analysis Plan (Chemical Data Acquisition Plan).** (Respondents) shall refer to 40 CFR 300.415(b)(4)(ii), Environmental Data Quality Management- for the Sampling Analysis Plan (SAP) format. (Respondents) shall follow the Specifications as outlined in 40 CFR 300.415(b) (4) (ii).

1) **Quality Assurance Project Plan.** (Respondents) shall submit a site – specific Quality Assurance Project Plan (QAPP) in accordance with EPA QA/R-5 (latest draft or revision) and EPA 240/B-01/003. The QAPP shall describe the project objectives and organization desired DQOs. The DQOs shall, at a minimum, reflect use of analytical methods for identifying contamination and addressing contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan.
2) **Field Sampling Plan.** The (Respondents) shall submit a site-specific Field Sampling Plan (FSP) that defines the sampling and data collection methods that shall be used for the project. The FSP shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis; and a breakdown of samples to be analyzed through the Contract Laboratory Program (CLP) and through other sources, as well as the justification for those decisions. The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. The FSP shall be written so that a field sampling team unfamiliar with the site would be able to gather the samples and field information required. Therefore, Standard Operating Procedures (SOPs) will be provided for the field tasks. The FSP shall identify the laboratory to be used for the analysis of all collected samples. The laboratory shall be NELAC certified in the specified method. (Respondents) shall document any required changes to the FSP in a memorandum to the USEPA Remedial Project Manager.
3) **Data Management Plan.** The (Respondents) shall submit a site-specific Data Management Plan to address requirements for project management systems including tracking, storing, and retrieving data. The plan shall also identify software to be used, minimum data requirements, data format, and backup data management. The plan shall incorporate the use of Electronic Data Deliverables (EDD) and the ANSETS database program. The plan shall address both data management and document control for all RA activities, including the use of the existing Corps of Engineers analytical database for this project.
4) **Data Validation.** (Respondents) shall arrange for the validation of environmental samples collected **during task 3.2.** (Respondents) shall

perform appropriate data validation by a contracted third party laboratory to ensure that the data are accurate and defensible. The plan shall incorporate the use of Electronic Data Deliverables (EDD), the ANSETS database program, and the existing Corps of Engineers analytical database for this project. (Respondents) shall submit a QCSR in accordance with USEPA Contract Laboratory Program, National Functional Guidelines for Organic and Inorganic Data Review (EPA540/R-94/012,013. (Respondents) shall perform the following activities or combinations of activities to validate test results:

**a)** Coordinate with appropriate sample management, field and laboratory personnel.

**b)** Prepare and ship environmental samples.

**c)** Review and approve laboratory QA and sample management programs.

**d)** Provide sample management (i.e. chain of custody, sample retention, and data storage) and ensure the proper management of samples. (Respondents) shall ensure accurate chain-of-custody procedures for sample tracking, protective sample packing techniques, and proper sample-preservation techniques.

**e)** Validate data. Provide data validation report (QCSR) for each data package and final PARCC report for full sampling event. Review analysis results against validation criteria EPA540/R-94/012, 013.

5) **Develop Pollution Control and Mitigation Plan.** (Respondents) shall submit a site-specific Pollution Control and Mitigation Plan that outlines the process, procedures, and safeguards that will be used to ensure contaminants or pollutants are not released off-site during RA implementation.

6) **Transportation and Disposal Plan** (Waste Management Plan). (Respondents) shall submit a site-specific Transportation and Disposal Plan that outlines how wastes that are encountered during the investigations will be managed and disposed off site. (Respondents) shall specify the procedures that will be followed when wastes will be characterized, transported off-site for storage, treatment, or disposal.

2.3 **Attend Work Plan Meeting.** (Respondents) shall attend a scoping meeting to be held at the USEPA office in San Francisco to discuss the draft work plans. The date will be contingent upon the (Respondents) proposed work schedule. (Respondents) shall send appropriate personnel to the scoping meeting.

2.4 **Prepare Final Work Plans.** (Respondents) shall incorporate all comments on the work plans within twenty-one (21) days of receipt of government's comments. Site work shall not commence until the Final Work Plans are approved by the USEPA.

## Task 3 Data Acquisition

Data acquisition entails collecting environmental samples and information required to support the RA for OU2. Data acquisition starts with USEPA approval of the Site Specific Work Plans and ends with the demobilization of field personnel and equipment from the site. All data must support risk assessment protocol.

The (Respondents) shall perform the following field activities or combination of activities for the RA as required for completion in accordance with the USEPA approved Site Specific Work Plans.

**3.1 Mobilization and Demobilization.** (Respondents) shall provide the necessary personnel, equipment, and materials for mobilization and demobilization to and from the site for the purpose of conducting the sampling program, Field Investigation.

**3.1.1 Identify Field Support Equipment, Supplies, and Facilities.**

**3.1.2 Mobilization.** (Respondents) shall mobilize to perform collection of field samples and drilling activities.

**3.1.3 Demobilization.** (Respondents) shall demobilize to remove any temporary facilities.

**3.2 Field Investigation.** (Respondents) shall provide all labor and equipment necessary to conduct environmental sampling to include the following:

**3.2.1 Perform Site Reconnaissance.** (Respondents) shall conduct site surveys including property, boundary, utility rights-of-way, and topographic information. These surveys are to ensure the accuracy of existing information for the RA.

**1)** Ecological Resources Reconnaissance
**2)** Well Sampling and Analysis
**3)** Land Survey
**4)** Field Screening
**5)** Physical properties of the soils

**3.2.2 Conduct Geological Investigations (Soils)**

**1)** Collect Surface Soil Samples
**2)** Collect Subsurface Soil Samples
**3)** Soil Boring and Permeability Sampling

**3.2.3 Conduct Air Investigations**

**1)** Sample Collection
**2)** Air Monitoring Station
**3)** Survey Soil Gasses

**3.2.4 Conduct Hydrogeological Investigations: Ground Water**

**1)** Install Well Systems
  **a)** Accomplish Mobilization
  **b)** Drilling Boreholes
  **c)** Develop Wells
  **d)** Conduct Down hole Geophysics
  **e)** Install Monitoring Wells
  **f)** Install Test Wells
  **g)** Install Vadose Wells
**2)** Collect Samples (including background samples)
**3)** Collect Samples during Drilling (e.g., Hydro-Punch or Equivalent)
**4)** Perform Hydraulic Tests (Pump Tests)
**5)** Measure Ground-Water Elevation
**6)** Measure Surface-Water Elevation

**3.2.5 Conduct Waste Investigation**

**1)** Collect Samples (Liquid, Solid)
**2)** Analyze Derived Waste (Liquid, Solid)

**3.2.6 Dispose of Investigation-Derived Waste.** Characterize and dispose of investigation-derived wastes in accordance with local, State, and Federal regulations as specified in the FSP (see the Fact Sheet, *Guide to Management of Investigation-Derived Wastes*, 9345.3-03FS (January 1992).

## Task 4 Sample Analysis

(Respondents) shall arrange for the analysis of environmental samples collected during the RA work. (Respondents) shall provide a NELAC and California Certified validated laboratory for this task. This task ends with the (Respondents) validating the analytical data received from the laboratory as specified in the QAPP. All data must support risk assessment protocol.

(Respondents's) selected laboratory shall perform the following activities or combination of activities to analyze for all contaminants of concern listed in the ROD test results:

**4.1 Screening-Type Laboratory Sample Analysis (Laboratory or On-Site)**

- **4.1.1 Analyze Air and Gas Samples**
  - **1)** Organic
  - **2)** Inorganic
  - **3)** Wet Chemistry (pH, alkalinity, etc)
- **4.1.2 Analyze Ground-Water Samples**
  - **1)** Organic
  - **2)** Inorganic
- **4.1.3 Analyze Surface-Water Samples**
  - **1)** Organic
  - **2)** Inorganic
- **4.1.4 Analyze Soil and Gas Samples**
  - **1)** Organic
  - **2)** Inorganic
- **4.1.5 Analyze Waste (Liquid) Samples**
  - **1)** Organic
  - **2)** Inorganic
- **4.1.6 Analyze Waste (Solid) Samples**
  - **1)** Organic
  - **2)** Inorganic

**4.2 Laboratory Sample Analysis**

- **4.2.1 Analyze Air and Gas Samples**
  - **1)** Organic
  - **2)** Inorganic
- **4.2.2 Analyze Ground-Water Samples**
  - **1)** Organic
  - **2)** Inorganic
- **4.2.3 Analyze Surface-Water Samples**
  - **1)** Organic
  - **2)** Inorganic
- **4.2.4 Analyze Soil and Gas Samples**
  - **1)** Organic
  - **2)** Inorganic
- **4.2.5 Analyze Waste (Liquid) Samples**
  - **1)** Organic
  - **2)** Inorganic
- **4.2.6 Analyze Waste (Solid) Samples**
  - **1)** Organic
  - **2)** Inorganic

## Task 5 Data Evaluation

(Respondents) shall organize and evaluate existing data and data gathered during the previous tasks that will be used later in the RA effort. Data evaluation begins with the receipt of analytical data from the data acquisition task and ends with the submittal of the Data Evaluation Summary Report. All data must support risk assessment protocol. All validated data shall be incorporated into the draft findings report. Specifically, (Respondents) shall perform the following activities or combination of activities during the data evaluation effort:

**5.1 Data Usability Evaluation and Field QA/QC.**
**5.2 Data Reduction, Tabulation, and Evaluation.** Evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables. Design and set up an appropriate database for pertinent information collected that will be used during the RA. This will include construction of cross sections, plume map(s), and water table elevation contours to understand the framework of groundwater and contaminant movement.
**5.3 Evaluate Geological Data (Soils and Gases).**
**5.4 Evaluate Hydrogeological Data: Ground Water.**
**5.5 Evaluate Waste Data.**
**5.6 Modeling Contaminant Fate and Transport.** Could require setting up a conceptual model and basic analytical model to determine if more detailed numerical modeling is required.
**5.7 Validate Analytical Data.**

## Task 6 Remedial Action Implementation Management

(Respondents) shall provide field supervision associated with the monitoring and documentation of the work being done at the site in accordance with the design and all subcontract(s) documents (e.g., drawings, specifications and plans) and ensure the implementation of the remedial action at the site is protective of human health and the environment. Typical activities include, but are not limited to, the following:

1. Conducting/attending progress meetings,
2. Maintaining field logs and daily diaries,
3. Providing advice on what is intended by subcontract documents,
4. Preparing sketches to reflect field conditions,
5. Checking construction drawings submitted by construction subcontractors for compliance with design concept, preparing reports on inspections,
6. Attend final inspection and preparing report w/punch list,
7. Monitoring, updating, and reporting construction progress,
8. Reviewing and recommending time extensions,
9. Coordinating with Home Office/Management Support Conducting regular Davis-Bacon Act interviews on-site,
10. Reviewing and making recommendations for changes,
11. Providing advice on need and cost of proposed change orders,
12. Providing assistance in prevention and resolution of subcontractor claims,
13. Seeking approval of pending construction schedules,
14. Maintaining an on-going photo log of all activities performed on the site,
15. Evaluating rebound for remediation systems,
16. Performing field testing, recommending action on health and safety considerations (e.g., site safety plan), monitoring quality control procedures.

6.1 **Project Performance.** (Respondents) shall perform all activities necessary to ensure the RA implemented at the site is in accordance with the design developed for the RA and in the O&M plan. (Respondents) shall perform typical activities include, but not limited to the following:

**6.1.1 Conduct pre start-up check out.** (Respondents) shall perform the following task for pre-start up of remedies implement under the RA, which includes, but not limited to:

**1)** Review the existing O&M manual,
**2)** Describing and analyzing potential operating problems,
**3)** Supporting training operation and maintenance of O&M staff
**4)** Provided O&M training for State personnel
**5)** Report on conformity to applicable performance and operations requirements,
**6)** Determine cause of failure and develop corrective action report
**7)** Review record development and laboratory procedures,
**8)** Review process system, safety and emergency systems, and warranty files.

**6.1.2 Evaluate system performance.** (Respondents) shall for the one-year operational and functional period, evaluate equipment system performance, witness performance tests, gather and test samples.

**1)** Operate and provided appropriate upkeep and maintenance,
- **a)** Facilities (buildings, fencing, and appropriate signage)
- **b)** Equipment
- **c)** RCRA and Non-RCRA Capped Area
- **d)** Monitoring Well Installation, Repair, and Maintenance
- **e)** All System Selected by ROD and Installed

**2)** Provide appropriate security to site

**6.1.3 Update Operation and Maintenance Manual (as needed)**

**6.1.4 Conduct Trend Analyses and Optimization Of Systems**

**6.2 Draft Annual Project Performance Report.** (Respondents) shall compile a draft Annual Project Performance Report that includes all item identified in Task 6 and Section 6.1.

**6.3 Final Annual Project Performance Report.** (Respondents) shall finalize the draft Annual Project Performance Report within twenty-one (21) days of the receipt of all government comments.

## Task 7 Remedial Action Completion

(Respondents) shall ascertain project completion and closeout tasks associated with the RA for the B&B site. These tasks include but are not limited to, the following:

7.1 **Demobilization of site workers and on-site project office, final payment and shutoff of all utilities.**

7.2 **Pre-final/Final Activities.** The (Respondents) shall perform the following: consolidation of project needs, pre-final/final inspection and certification, direct final project demobilization and make lockout inspection.

7.3 **Final Payment/Punch list.** The (Respondents) shall perform the following: resolution /certification that the project is complete according to plans and specifications. This task may involve trial periods, shakedowns, test or trial runs/burns.

7.4 **Submission of as-built drawings.**

7.5 **Update the O&M Manual.**

7.6 **Training for State and/or contractor employees who will conduct future O&M.**

7.7 **Assist in transfer of the project to the State at USEPA request.**

7.8 **Draft Remedial Action Report.** The (Respondents) shall prepare a draft Remedial Action Report in accordance with Closeout Procedures for National Priorities List Sites OWWER Directive 9320.2-09A-P.

7.9 **Final Remedial Action Report.** (Respondents) shall prepare a Final Remedial Action Report thirty (30) days after receipt of comments from USEPA.

## Task 8 Remedial Action Closeout

Perform the necessary activities to close out the remedial action work in accordance with order requirements. Typical activities include but are not limited to, the following :

8.1 **Packaging and returning documents to the government.**

8.2 **Duplicating/distribution/storage of files.**

8.3 **Archiving files in accordance with Federal Record Center requirements.**

8.4 **Preparing microfiche/microfilm/optical disk or other USEPA-approved data storage technology.**

8.5 **Preparing the closeout report in accordance with USEPA guidance.**

## Distribution List

Wherever possible, (Respondents) shall submit three-ring bound copies. Any revisions shall be submitted as replacement sheets along with a register of changes. The following are the names and addresses of the team members who are to receive the documents for review and comment. (Respondents) shall be responsible for ensuring that each of these members receives the documents on the established deadlines.

U.S. Environmental Protection Agency, Region IX
Hazardous Waste Management Division, SFD-7-4
75 Hawthorne Street
San Francisco, CA 94105
Attn: Travis Cain

CA EPA
Dept of Toxic Waste Substances Control
Northern California Region
Northern California Case
Development Unit
8800 Cal Center Drive
Sacramento, CA 95826
Attn: Emmanuel Mensah

*NOTE: (Respondents) shall be responsible for providing hard copies of all documents required for the Administrative record to the RPM (currently Travis Cain) in EPA Region IX. In addition, all documents including, but not limited to, electronic mail, meeting minutes, scopes, cost estimates and schedules shall be incorporated onto a compact disc (CD) for the record.*

## Attachment 1
## Summary of Major Submittals for the Remedial Action

| TASK | DELIVERABLE | NO. OF COPIES | DUE DATE (calendar days) | DATE RECEIVED |
|---|---|---|---|---|
| 1.2 | Site Summary Report | 6 | 21 days before scoping meeting | |
| 2.1.1 | Draft RA Work Plan | 6 | | |
| 2.4 | Final RA Work Plan | 6 | 21 days after receipt of comments | |
| 2.2.1 | Draft Site Management Plan (SMP) Addendum | 6 | | |
| 2.4 | Final SMP | 6 | 21 days after receipt of comments | |
| 2.2.2 | Draft Health and Safety Plan (HASP) | 6 | | |
| 2.4 | Final HASP | 6 | 21 days after receipt of EPA comments | |
| 2.2.3 | Draft Sampling and Analysis Plan (SAP) | 6 | | |
| 2.4 | Final SAP | 6 | 21 days after receipt of EPA comments | |
| 2.2.3.1) | Draft Quality Assurance Project Plan (QAPP) | 6 | | |
| 2.4 | Final QAPP | 6 | 21 days after receipt of EPA comments | |

| | | | | |
|---|---|---|---|---|
| 2.2.3.2) | Draft Field Sampling Plan (FSP) | 6 | | |
| 2.4 | Final FSP | 6 | 21 days after receipt of EPA comments | |
| 2.2.3.3) | Draft Data Management Plan | 6 | | |
| 2.4 | Final Data Management Plan | 6 | 21 days after receipt of comments | |
| 2.2.3.4) | Draft Data Validation QCSR | 6 | | |
| 2.4 | Final Data Validation QCSR | 6 | 21 days after receipt of comments | |
| 2.2.3.5) | Draft Pollution Control and Mitigation Plan | 6 | | |
| 2.4 | Final Pollution Control and Mitigation Plan | 6 | 21 days after receipt of comments | |
| 2.2.3.6) | Draft Transportation and Disposal Plan | 6 | | |
| 2.4 | Final Transportation and Disposal Plan | 6 | 21 days after receipt of comments | |
| 6.2 | Draft Annual Project Performance Report | 6 | Annually on the date that this SOW is issued | |
| 6.3 | Final Annual Project Performance Report | 6 | 21 days after receipt of comments | |
| 7.8 | Draft Remedial Action (RA) Report | 6 | At Completion of RA | |
| 7.9 | Final RA Report | 6 | 30 days after receipt of comments | |

**Attachment 2**
**Submittal Criteria and Standards**

(Respondents) shall prepare the draft and final reporting materials in accordance with criteria and applicable publications and manuals specified in the Scope of Work. All reports shall also be prepared in accordance with guidance previously furnished or with supplemental detailed instructions which may be provided in writing by the USEPA Remedial Project Manager before and during the progress of the work. (Respondents) is not to undertake action for relocation, enlargement or deletion of any features of this proposed project. (Respondents) shall be responsible for notifying the USEPA Remedial Project Manager of any missing criteria needed for their work.

a. Paper Copy Format: The paper copy reports (hard copy) shall be submitted bound in a 3-ring binder or comb-bound with dividers for the major sub-portions of the report. The reports shall be printed double-sided. Photographs and figures shall be presented in color.

b. Electronic Format: The magnetic media shall be compact disks formatted for use on an IBM Pentium 1 or 2 PC or compatible. All text shall be in a format compatible to software being used by the Government. Utilized software is a follows: Microsoft Word, Release 5; Microsoft Excel, Release 4; and MS DOS, Release 6.22. All disks shall be clearly labeled with the following information:

(Respondents) or Subcontractor's Name
Project Number, Task Order Number
Descriptions of content
Name of Software and Release Number utilized
MS-DOS Release Number
Any other pertinent information.

c. Contractor Quality Control: Prior to transmittal of the draft submittal, (Respondents) shall perform an internal review of materials to be submitted. Submitted drafts shall be free of typographical errors and other general errors. For each submittal, (Respondents) shall be able to provide check sheets, marked sketches, etc., as evidence that internal review has been performed if requested by the USEPA Remedial Project Manager.

# Attachment 3

**Regulations and Guidance Documents**

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RA process:

1. American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.
2. ARCS Construction Contract Modification Procedures September 89, OERR Directive 9355.5-01/FS.
3. CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (DRAFT), OSWER Directive No. 9234.1-01 and -02.
4. Community Relations in Superfund  A Handbook, U.S. EPA, Office of Emergency and Remedial Response, January 1992, OSWER Directive No. 9230.0-3B.
5. A Compendium of Superfund Field Operations Methods, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
6. Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, U.S. EPA, Office of Solid Waste and Emergency Response, October 1986, OSWER Directive No. 9472.003.
7. Contractor Requirements for the Control and Security of RCRA Confidential Business Information, March 1984.
8. Data Quality Objectives for Remedial Response Activities, U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.
9. Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual, .U.S. EPA Region IV, Environmental Services Division, April 1, 1986 (revised periodically).
10. EPA NEIC Policies and Procedures Manual, EPA-330/9-78-001-R, May 1978, revised November 1984.
11. Federal Acquisition Regulation, Washington, DC: U.S. Government Printing Office (revised periodically).
12. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive NO. 9355.3-01.
13. Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potential Responsible Parties, U.S. EPA Office of Emergency and Remedial Response, EPA/540/G-90/001, April 1990.
14. Guidance on Expediting Remedial Design and Remedial Actions, EPA/540/G-90/006, August 1990.
15. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response (DRAFT), OSWER Directive No. 9283.1-2.
16. Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, Prepublication version.
17. Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.
18. Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.
19. Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.
20. Interim Guidance on Compliance with Applicable of Relevant and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.
21. Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.
22. Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 23/02-89-042; vol. 2, Ground water (Jul 1992).
23. National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.
24. NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.
25. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.

26. Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.
27. Procedure for Planning and Implementing Off-Site Response Actions, Federal Register, Volume 50, Number 214, November 1985, pages 45933-45937.
28. Procedures for Completion and Deletion of NPL Sites, U.S. EPA, Office of Emergency and Remedial Response, April 1989, OSWER Directive No. 9320.2-3A.
29. Quality in the Constructed Project: A Guideline for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.
30. Remedial Design and Remedial Action Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1995, OSWER Directive No. 9355.5-22.
31. Revision of Policy Regarding Superfund Project Assignments, OSWER Directive No. 9242.3-08, December 10, 1991. [Guidance, p. 2-2]
32. Scoping the Remedial Design (Fact Sheet), February 1995, OSWER Publ. 9355-5-21 FS.
33. Standard Operating Safety Guides, U.S. EPA, Office of Emergency and Remedial Response, November 1984.
34. Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.
35. Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.
36. Structure and Components of 5-Year Reviews, OSWER Directive No. 9355.7-02, May 23, 1991. [Guidance, p. 3-5]
37. Superfund Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, April 1990, EPA/540/G-90/001.
38. Superfund Remedial Design and Remedial Action Guidance, U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.0-4A.
39. Superfund Response Action Contracts (Fact Sheet), May 1993, OSWER Publ. 9242.2-08FS.
40. TLVs-Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.
41. Treatability Studies Under CERCLA, Final. U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-92/071a, October 1992.
42. USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, U.S. EPA, Office of Emergency and Remedial Response, July 1988.
43. USEPA Contract Laboratory Program Statement of Work for Organic Analysis, U.S. EPA, Office of Emergency and Remedial Response, February 1988.
44. User's Guide to the EPA Contract Laboratory Program, U.S. EPA, Sample Management Office, August 1982.
45. Value Engineering (Fact Sheet), U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9355.5-03FS, May 1990.
46. U.S. EPA, Publication EPA540/R-94/012, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, February 1994.
47. U.S. EPA, Publication EPA540/R-94/013, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994.